[0194] The shape of the outer circumference of the film body is circular, and the size (diameter) of the circle is 6 mm.

(Holder for Holding the Device of the Present Invention)

[0195] As shown in FIG. **4**, a holder for setting the mesh structure was produced. The inner diameter of the conduit (circular cross section) for flowing the liquid medium composition in which cell aggregates are dispersed is 3.0 mm, and the effective diameter of the flow of the liquid medium composition passing through the mesh structure is also 3.0 mm.

(Division of Cell Aggregate of hiPS Cell)

[0196] After suspension culture for 7 days, the cell aggregates were collected using MACS (registered trade mark) Smart Stratiners (70 μm, manufactured by MACS), suspended in medium 1 to a cell density of 3.0×10^5 cells/mL. 45 mL of each suspension was transferred to a 50 mL syringe (manufactured by Nipro), the suspension was passed through an example product of the device of the present invention at a processing speed of 10 cm/sec, and dispensed into a 15 mL tube every 15 mL.

[0197] In addition, division including a backflow washing step was also performed by returning syringe with 1 mL every 10 mL.

[0198] The 15 mL tube after dispensing was allowed to stand in an incubator (37° C., 5% CO_2).

(Cell Survival Rate)

[0199] After 2 hrs from the division, the dispensed 15 mL tube was removed from the incubator, the cell aggregates were well dispersed by blending with inversion. 0.75 mL of the culture medium was collected and 0.75 mL of ATP reagent (CellTiter-Glo (registered trade mark) Luminescent Cell Viability Assay, manufactured by Promega) was added and the mixture was well stirred with Pipetman. After allowing to stand at room temperature for 10 min, 100 μL of each was dispensed into a white 96-well plate, the luminescence intensity (RLU value) was measured with Enspire (manufactured by Perkin Elmer), and the number of viable cells was measured by subtracting the luminescence value of the medium alone.

[0200] The relative value when the RLU value (ATP measurement, luminescence intensity) of the suspension before division was 100% was taken as the cell survival rate.

[0201] The results of the above are shown in the graph of FIG. **9**.

[0202] As is clear from the results shown in the graph of FIG. **9**, it was found that the cell survival rate decreases in a dose-dependent manner under all conditions. Furthermore, it was found that the cell survival rate is higher when the opening shape is square than when it is a regular hexagon, and that the cell survival rate is higher when the cross-sectional shape of the beam part is rounded at the corner on the inlet side than when it is rectangular.

[0203] The results regarding the shape of the opening in this test are not simply influenced by the shape of the opening. Since the opening area of the regular hexagon is 3118 μm^2 and the opening area of the square is 3600 μm^2, it is also considered that higher cell survival rate is achieved with the square having a larger opening area.

[0204] From the above, it was clarified that it is very effective, in the division when scaled up, to make the cross-sectional shape of the beam part a rectangular shape with rounded corners on the inlet side.

INDUSTRIAL APPLICABILITY

[0205] According to the device and the method of the present invention, the problems of the conventional mesh can be resolved, cell aggregates can be more preferably divided, and culture and division in a closing system is made possible.

[0206] This application is based on a patent application No. 2018-148033 filed in Japan (filing date: Aug. 6, 2018), the contents of which are incorporated in full herein.

EXPLANATION OF SYMBOLS

[0207] **1** film-like main body part **1**

[0208] **10** mesh structure

[0209] **20** through-hole

[0210] **30** beam part

1. A device for dividing a cell aggregate into smaller cell aggregates, the device comprising a film-like main body part, wherein

a predetermined region on a film surface of the main body part has a mesh structure with many through-holes disposed on the film surface, the mesh structure comprises many through-holes penetrating the predetermined region in the film thickness direction, and a beam part serving as a partition between the through-holes,

the through-holes have an opening shape of a size permitting passage of the smaller cell aggregates, and

the beam part is a remainder after subtracting the through-hole from the main body part in the predetermined region, is a part that cuts the cell aggregates to be divided, and is integrally connected to form a network.

2. The device according to claim **1**, wherein the opening shape of the through-hole has an opening area with an equivalent-circle-diameter of 40 μm-90 μm, and a shape accommodating a circle with a diameter of 35 μm-85 μm.

3. The device according to claim **1**, wherein the beam part has a width of 10 μm-60 μm that is a separation distance between adjacent through-holes.

4. The device according to claim **1**, wherein said many through-holes have opening shapes of quadrangles congruent with each other, and said beam parts are connected to each other in an orthogonal lattice pattern.

5. The device according to claim **1**, wherein said many through-holes have opening shapes of hexagons congruent with each other, and said beam parts are connected to each other in a honeycomb-shape.

6. The device according to claim **5**, wherein the hexagon is a regular hexagon, and, among the six sides of the regular hexagon, a distance between two parallel sides facing each other is 38 μm-85 μm.

7. The device according to claim **1**, wherein the film surface is a first film surface, a film surface on the opposite side thereof is a second film surface,

when in use of the device, the first film surface is a surface used as an inlet side, the second film surface is a surface used as an outlet side, and

a cross-sectional shape in the perpendicular longitudinal direction of the beam part is a rectangle, or two corners on the inlet side of the rectangle have a round shape.